Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Concept check 18.2 and 18.3**

1. In general, what is the effect of histone acetylation and methylation on gene expression?
2. Compare the roles of general and specific transcription factors in regulating gene expression.
3. Suppose you compared the nucleotide sequences of the distal control elements in the enhancers of three genes that are expressed only in muscle tissue. What would you expect to find? Why?
4. Once mRNA encoding a particular protein reaches the cytoplasm, what are four mechanisms that can regulate the amount of the protein that is active in the cell?
5. Examine 18.10 and suggest a mechanisms by which the yellow activator protein comes to be present in the liver cell but not in the lens cell.
6. Imagine that the mRNA being degraded in Figure 18.13 codes for proteins that promotes cell division in a multicellular organism. What would happen, both in the cell and to the organism, if a mutation disabled the gene encoding the miRNA that triggers this degradation?

**AP Bio Gene Regulation (part of a) FRQ**

Information flow in cells can be regulated by various mechanisms.

1. Describe the role of THREE of the following in the regulation of protein synthesis: (3 pts)

• RNA splicing

• repressor proteins

• methylation

• siRNA

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